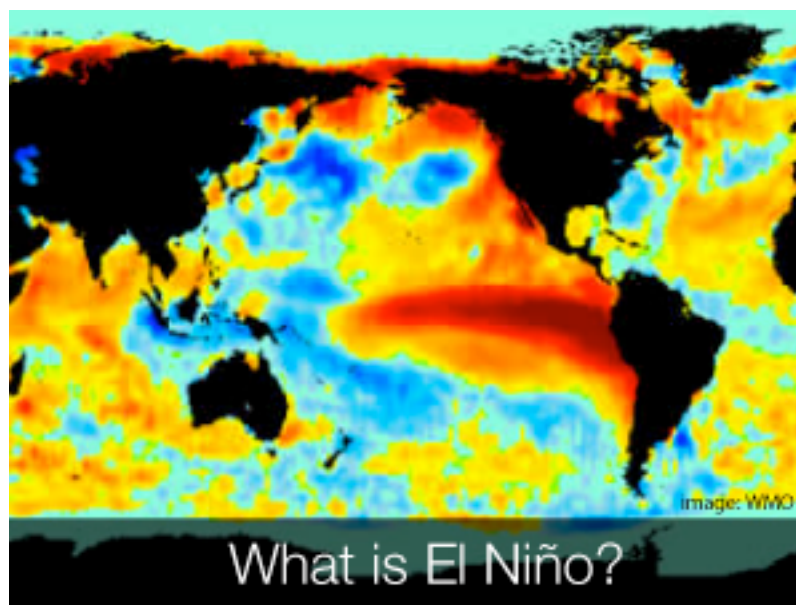




Monitoring ENSO and Future Seasonal Climate



Objective

To present past, current, and future monitoring of ENSO using NOAA and International Research Institute (IRI) web-portals

Outline

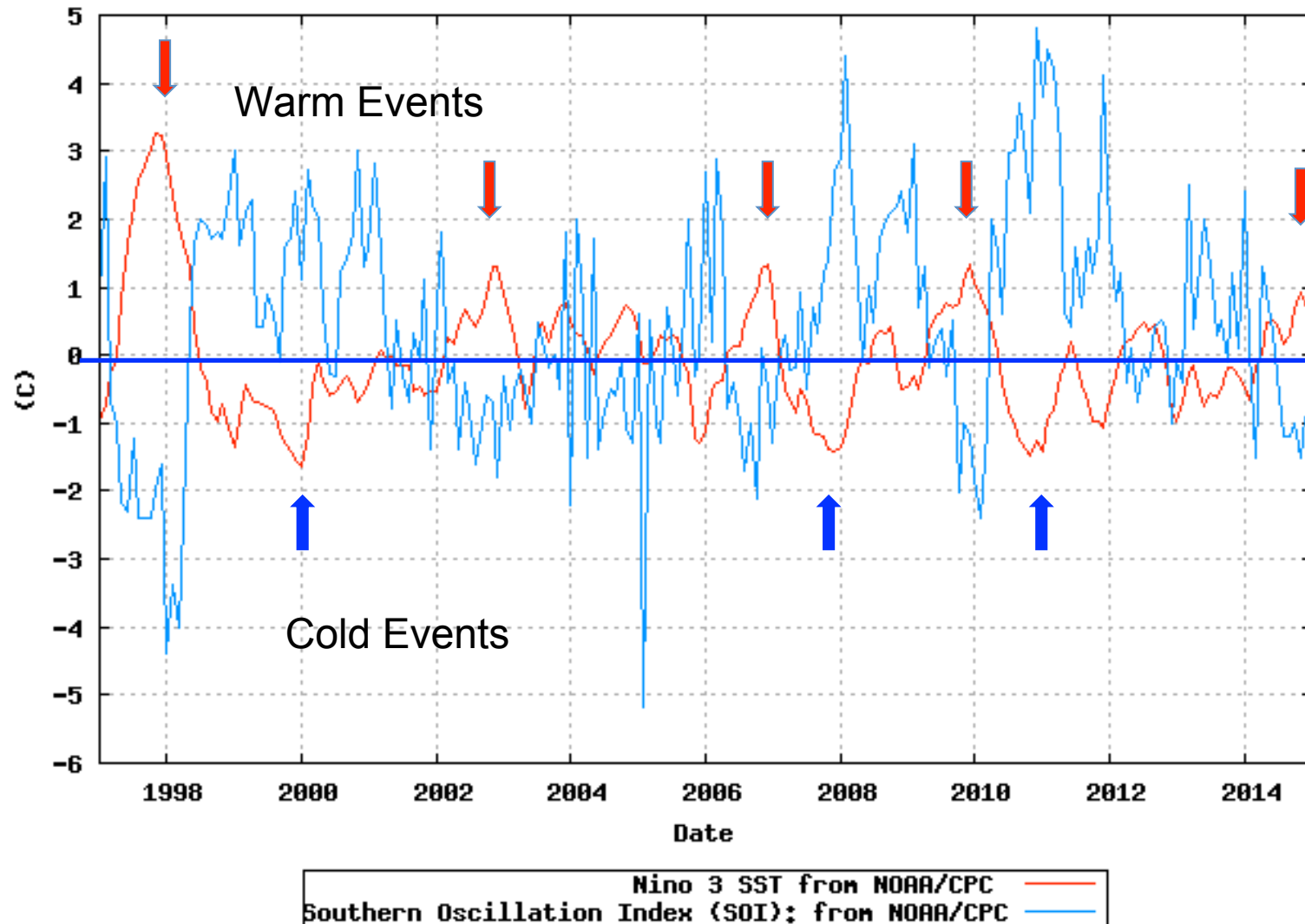
- Past ENSO Information
- *Current ENSO Conditions*
- *Seasonal Climate Outlook*

Past ENSO Information

Past ENSO Information can be obtained by plotting Climate Indices

<http://www.esrl.noaa.gov/psd/data/climateindices/list/>

Nino 3 SST from NOAA/CPC and Southern Oscillation Index (SOI): from NOAA/CPC anomalies
Jan to Dec: 1948 to 2015



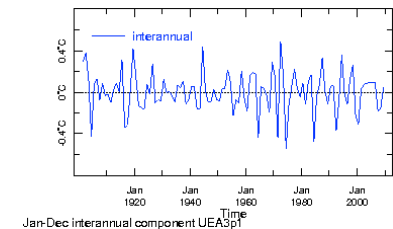
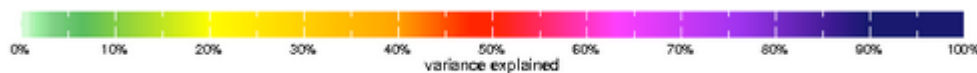
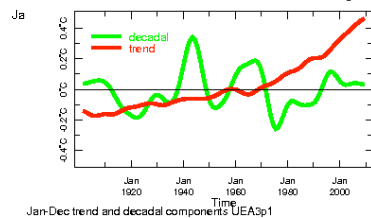
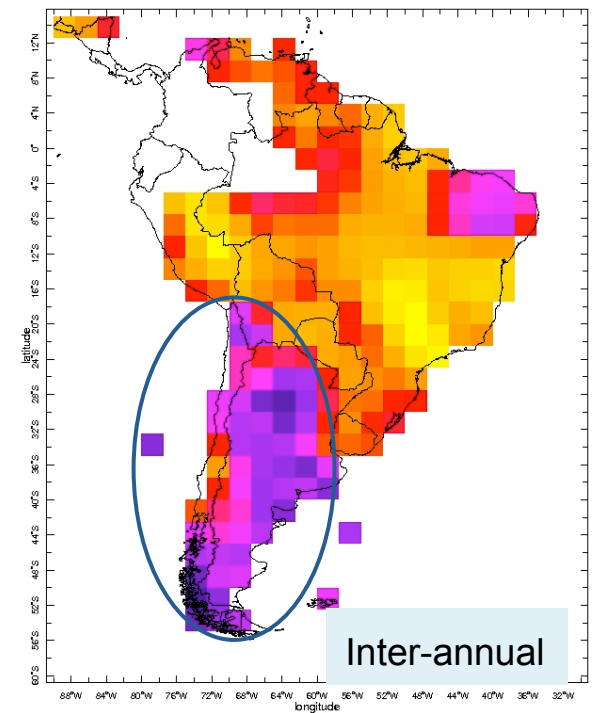
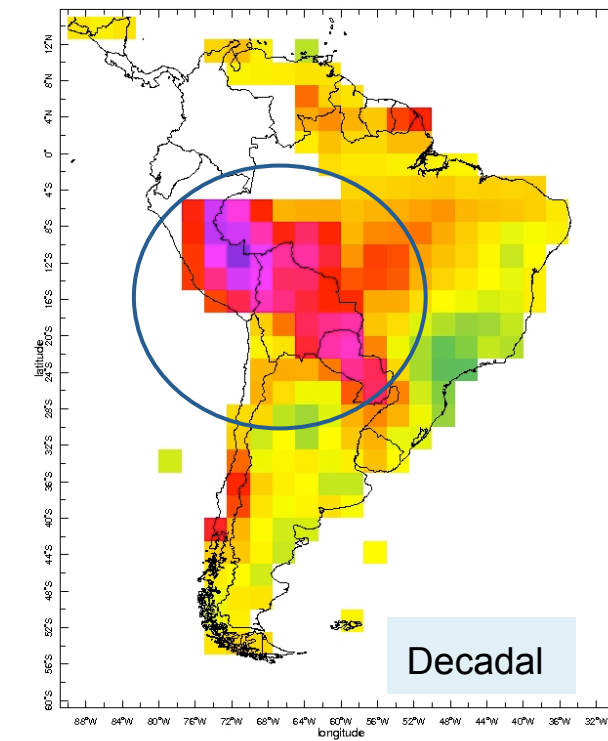
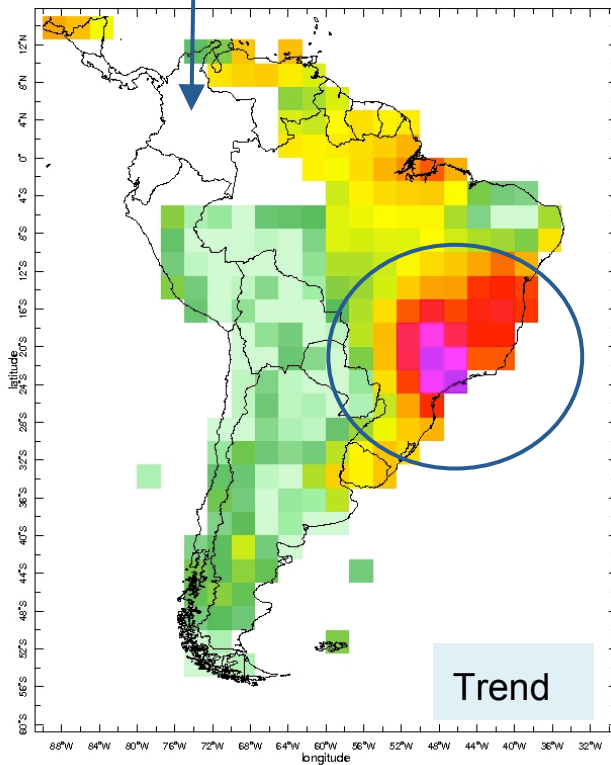
Past Climate Conditions over South America

http://iridl.ldeo.columbia.edu/maproom/Global/Time_Scales

Trend and Variability in Temperature

Not Sufficient
Data

Percent Variance in Different Time Scales Showing Relative
Importance of Trend, Decadal and Inter-annual Variability



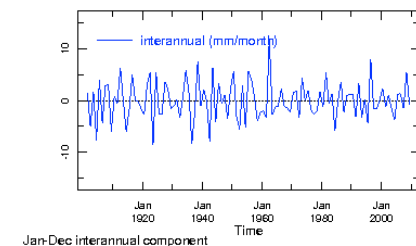
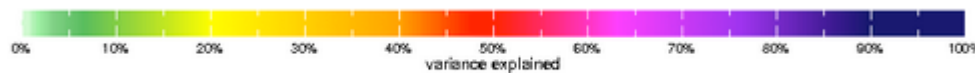
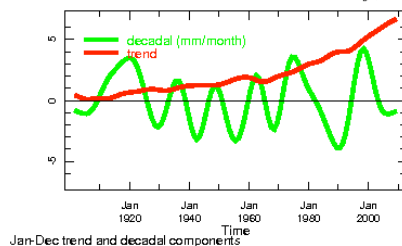
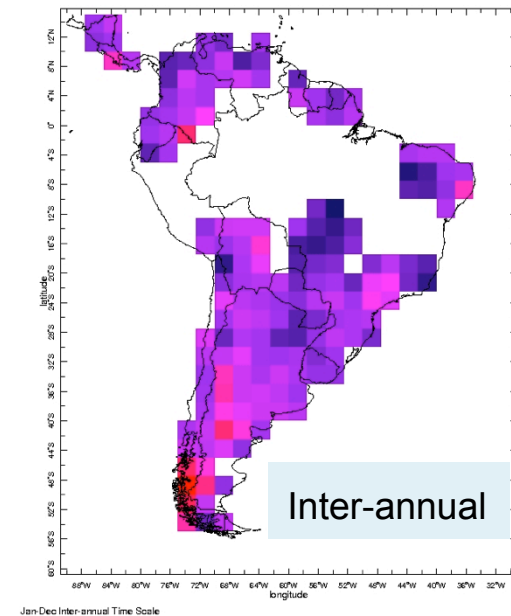
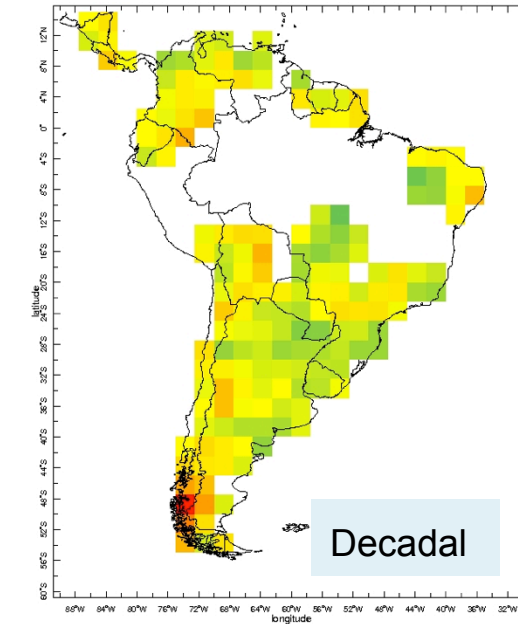
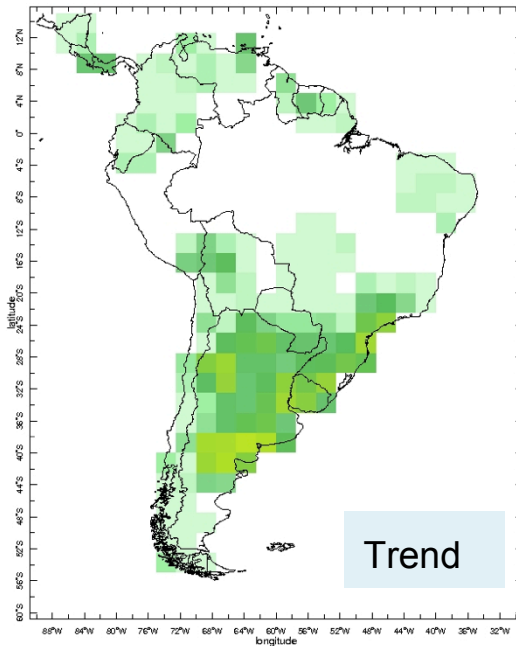
Past Climate Conditions over South America

http://iridl.ldeo.columbia.edu/maproom/Global/Time_Scales

Trend and Variability in Precipitation

Percent Variance in Different Time Scales Showing Relative Importance of Trend, Decadal and Inter-annual Variability

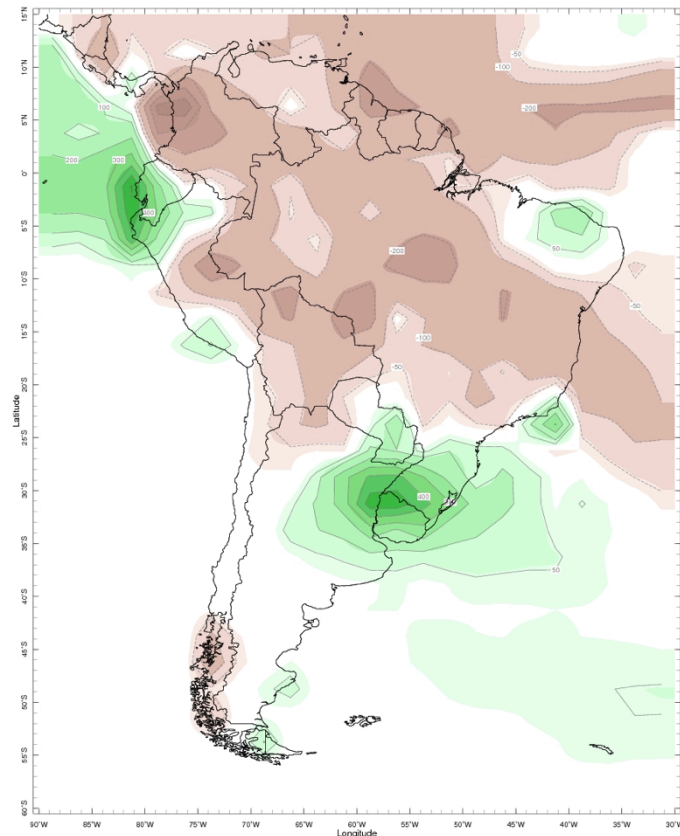
Inter-annual Variability
Contributes the Most in
Precipitation Variability



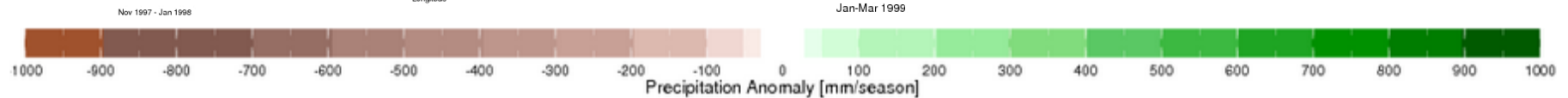
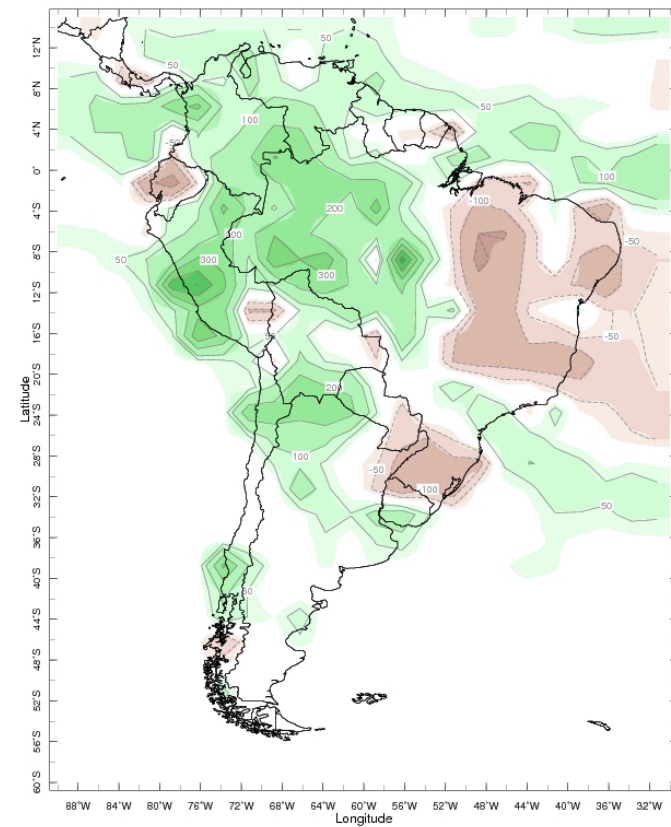
Analysis of Past Climate Conditions and their Impacts Help Plan for Similar Conditions in the Future (From the IRI Map Room)

Seasonal Precipitation Anomalies Affected by El Niño and La Niña

Nov 1997- Jan 1998 Warm Event



Jan-Mar 1999 Cold Event



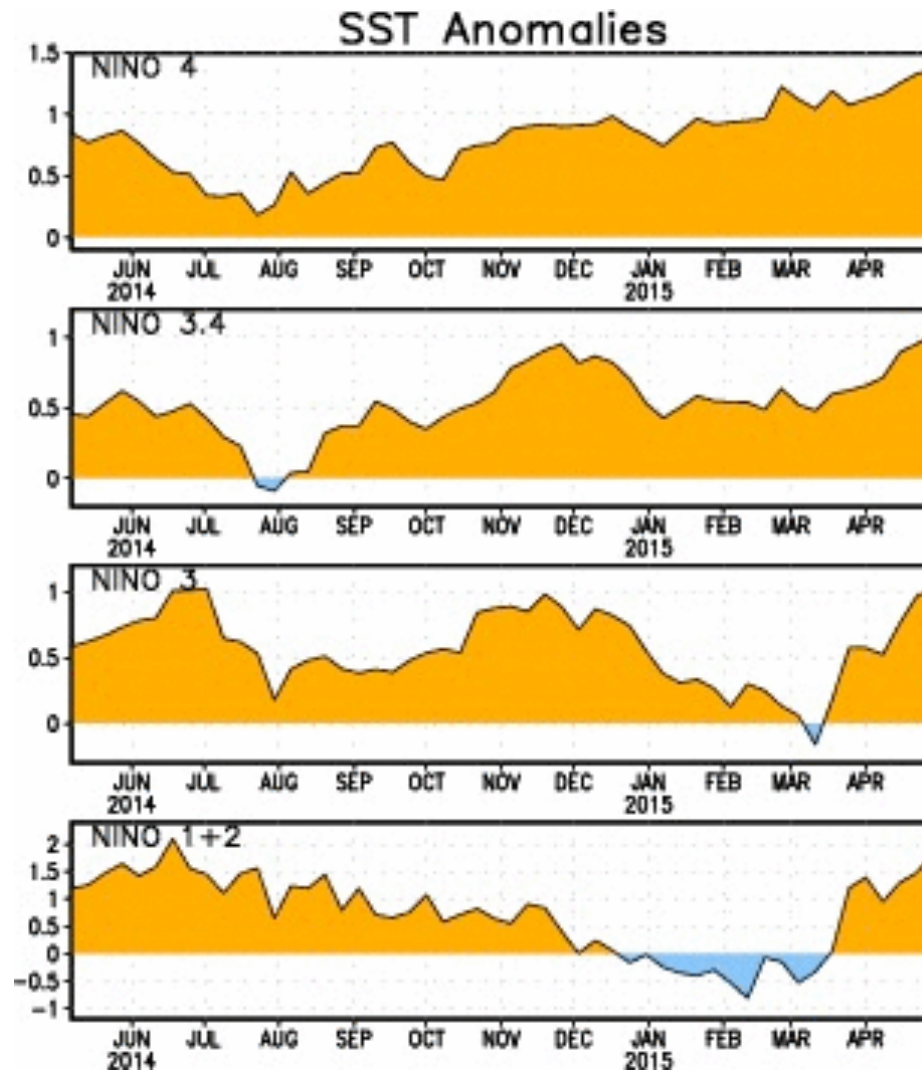
From IRI

Current Conditions

Recent ENSO Conditions

http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_update/sstanim.shtml

SST
Anomalies in
Degree C

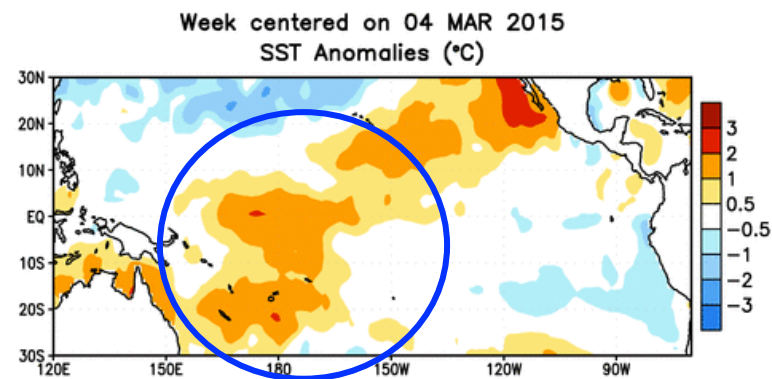
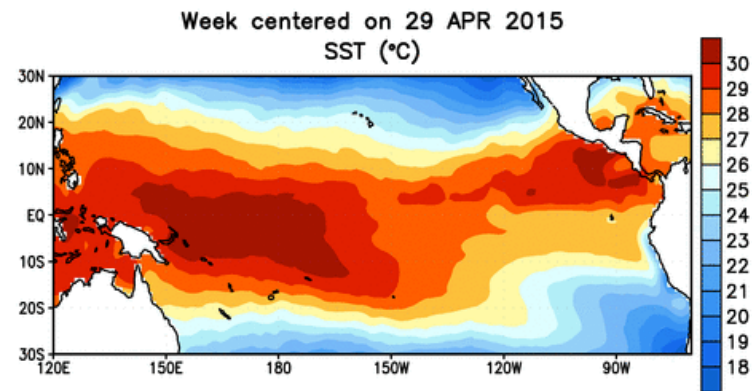


Nino Region
SST
Anomalies –
showing
warming in
most months
during 2014
and in early
2015

Current ENSO Conditions

http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_update/sstanim.shtml


HOME > Monitoring and Data > Oceanic & Atmospheric Data > Weekly ENSO Update > Tropical Pacific
Sea Surface Temperature Animation



Weekly SST
and SST
Anomalies
show warm
anomalies in
the equatorial
Pacific

Current Climate Conditions – Intraseasonal to Decadal

<http://www.cpc.ncep.noaa.gov/products/precip/CWlink/MJO/enso.shtml>



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Climate & Weather Link

El Niño/La Niña

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Teleconnections

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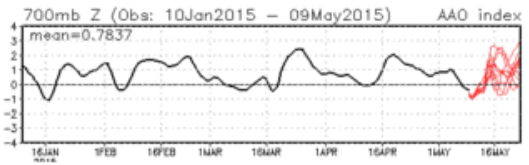
Antarctic Oscillation (AAO)

- [Current Conditions](#)
- [Outlooks](#)
- [References](#)

AAO: Observed & ENSM forecasts

700mb Z (Obs: 10Jan2015 – 09May2015) AAO index

mean=0.7837



Current Conditions


The daily AAO index is constructed by projecting the daily (00Z) 700mb height anomalies poleward of 20°S onto [the loading pattern of the AAO](#). Please note that year-round monthly mean anomaly data have been used to obtain the loading pattern of the AAO ([Methodology](#)).

Since the AAO has the largest variability during the cold season, the loading pattern primarily captures characteristics of the cold season AAO pattern.

The daily AAO index is shown for the past 120 days. Each daily value has been standardized by the standard deviation of the monthly AAO index from 1979-2000.

Current Climate Conditions Over South America

http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/regional_monitoring/south_america.shtml




National Weather Service
Climate Prediction Center

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Regional Climate Maps: South America

Southern South America

Weekly	Monthly	3-Month
Total Precipitation	Total Precipitation	Total Precipitation
Maximum Temperature	Percent of Normal Precipitation	Percent of Normal Precipitation
Minimum Temperature	Average Temperature	Average Temperature
Temperature Anomaly	Temperature Anomaly	Temperature Anomaly

Northern South America

Weekly	Monthly	3-Month
Total Precipitation	Total Precipitation	Total Precipitation
Maximum Temperature	Percent of Normal Precipitation	Percent of Normal Precipitation
Minimum Temperature	Average Temperature	Average Temperature
Temperature Anomaly	Temperature Anomaly	Temperature Anomaly

NOAA/ National Weather Service
NOAA Center for Weather and Climate Prediction

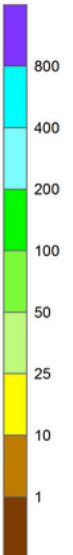
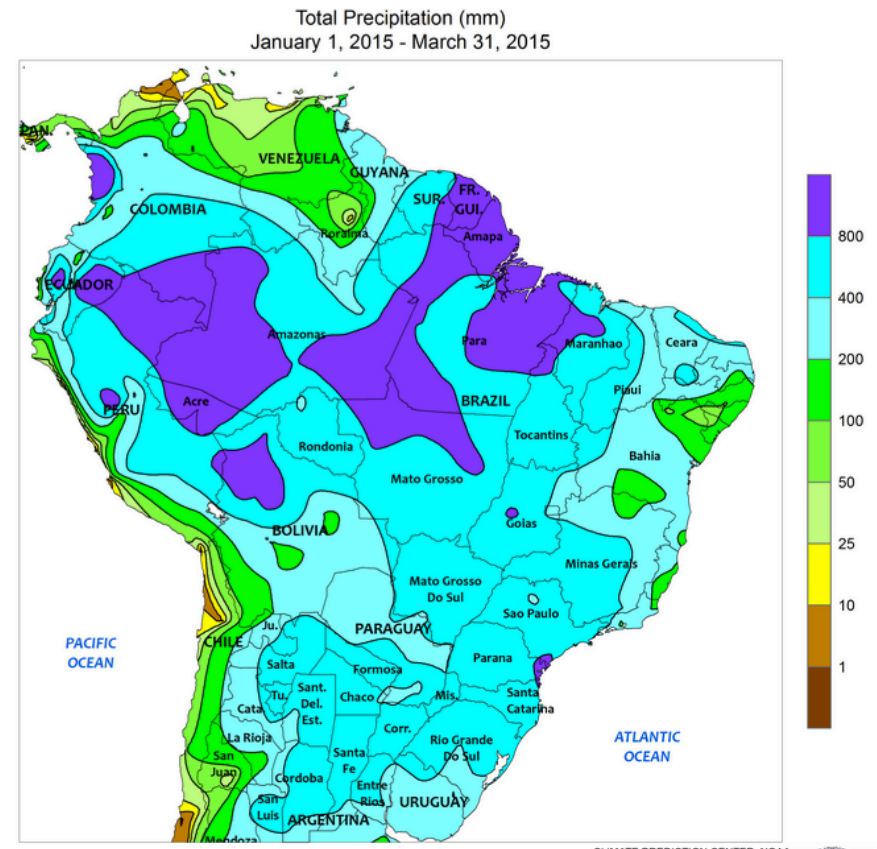
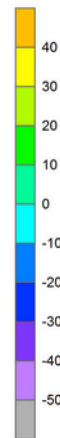
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Current Climate Conditions Over South America

http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/regional_monitoring/south_america.shtml

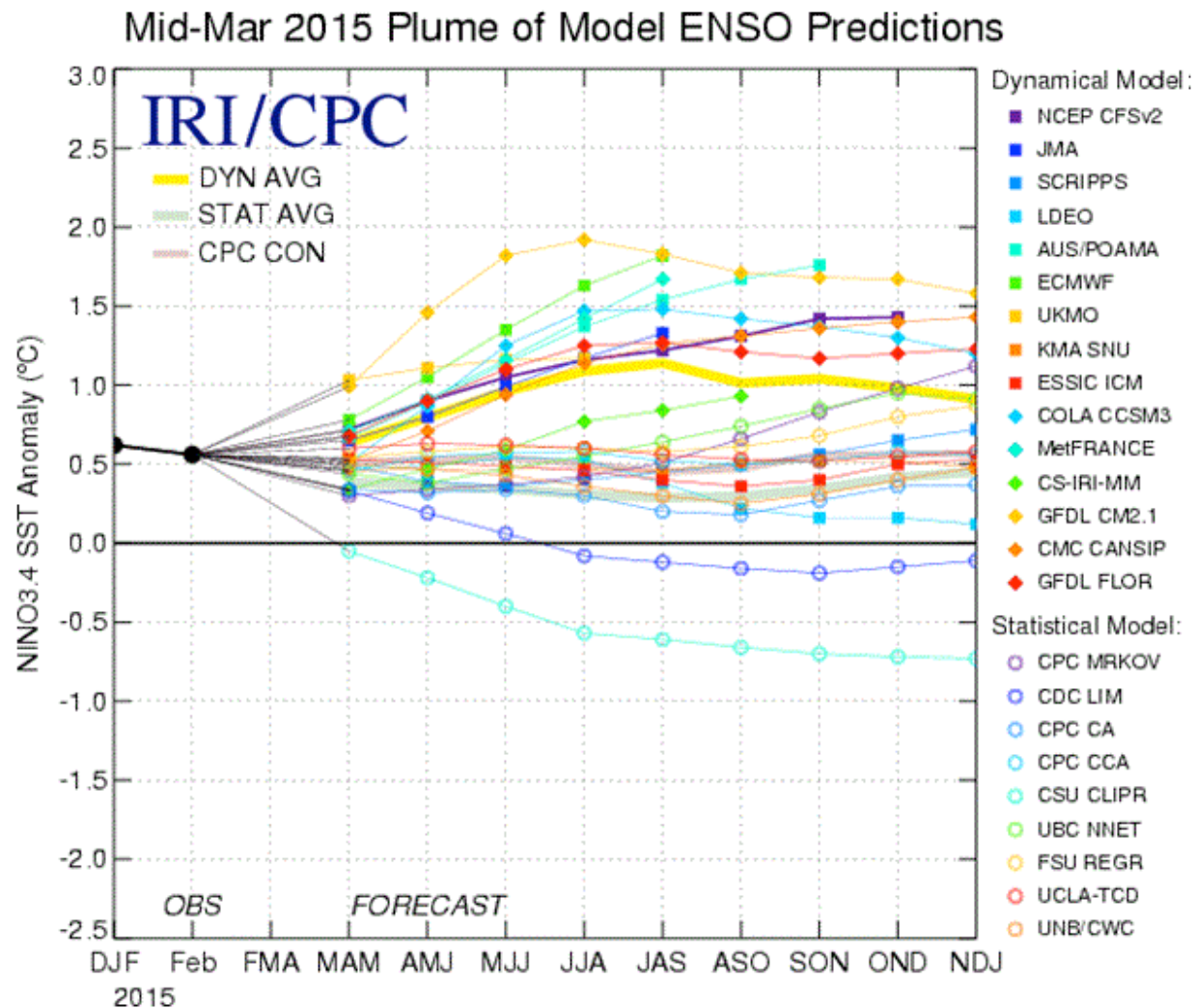
January – March Temperature and Precipitation



Seasonal Climate Outlook

ENSO Forecast

http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_advisory



Most models predict warming of SST in Niño 3.4 region in 2015

Figure 6. Forecasts of sea surface temperature (SST) anomalies for the Niño 3.4 region (5°N-5°S, 120°W-170°W). Figure updated 17 March 2015.

Seasonal Climate Forecast From IRI

<http://iri.columbia.edu/our-expertise/climate/forecasts/seasonal-climate-forecasts/>

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Seasonal Climate Forecasts

Users' Selections

Forecast Type
Precipitation

Forecast Issue Date
April2015

Target Season
May-June-July

Region
Global

☐ Observed Data

[Download GIF](#) / [Download Postscript](#)

Overview

Key

Percentage likelihood of:

A	Above-normal rainfall
N	Near-normal rainfall
B	Below-normal rainfall

Please see the corresponding 'Discussion' item for each Regional Forecast Map which provides a detailed explanation of the Forecast. Included with some of the older forecasts are 'validation maps' generated from data provided by

IRI ENSO Information

<http://iri.columbia.edu/our-expertise/climate/enso/>

ENSO Resources

The El Niño Southern Oscillation (ENSO) phenomenon contributes significantly to seasonal climate fluctuations in many regions of the globe, often with social and economic implications for human populations and the environment.

This site provides details of the current forecast status of ENSO conditions, as well as background information on both the physical phenomenon and some of its associated impacts. For more information, check out #IRIforecast on Twitter, or ask us a question using #ENSOQandA. A summary of each month's forecast briefing will be posted on the third Friday of each month.

[Click Here for the Current Forecast](#)

ENSO Forecasts

Select the desired ENSO Forecast:

2015 month

Important Links

[The Current ENSO Forecast](#)

[ENSO Rainfall Teleconnection Maps](#)

[The Current plume of ENSO Model Predictions](#)

[ENSO Blog \(climass.gov\)](#)

[Skill of Real-Time Seasonal ENSO Model Predictions during 2002 to 2011: Is Our Capability Increasing?](#)

Recent ENSO News

[April Climate Briefing: El Niño, For Now](#)

[March Climate Briefing: El Niño's Beginning, or End?](#)

[Video: Managing Water in a Dry Land](#)

Latest ENSO Publications

[Seasonality in the Impact of ENSO and the North Atlantic High on Caribbean Rainfall](#)

[Recent Multidecadal Strengthening of the Walker Circulation Across the Tropical Pacific](#)

[Climate Information, Outlooks, and Understanding - Where Does the IRI Stand?](#)

In the Media

[Study Finds Link Between El Niño and Tornado Frequency in US \(AccuWeather\)](#)

[Tornado Forecast: Study a Piece of the Loss Puzzle, Author Says \(Risk Market News\)](#)

[El Niño, La Niña Predict Severity of Tornado Season, Study Says \(The Weather Channel\)](#)

PROGRAM CONTACTS

[Tony Barnston, Chief Forecaster](#)

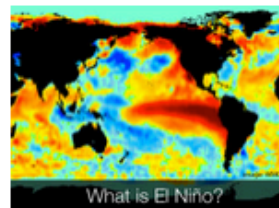
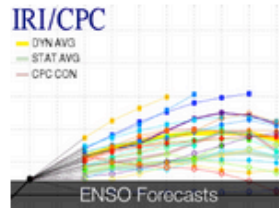
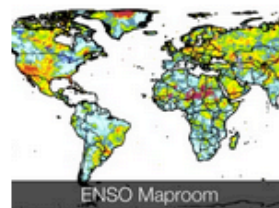
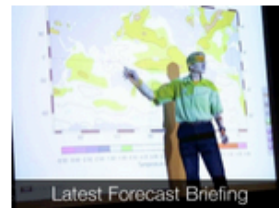
[Shuhua Li, Senior Staff Associate](#)

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Past Information

Forecast

Current Information



Live Demonstration of IRI and NOAA Climate Portals